Basic Info

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0932335.002
TECH TRACK
FUEL INJECTION

PCT ISS 03-04-99

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1. NDN 172-0022-0570-0: FUEL INJECTION DIAGNOSTIC CONTROL DEVICE PUBLICATION NUMBER- 09910751 WO

2. NDN 172-0022-0469-0: FUEL INJECTION VALVE PUBLICATION NUMBER 09910650 WO

3. NDN 172-0022-0468-9: FUEL INJECTION VALVE PUBLICATION NUMBER 09910649 WO

4. NDN 172-0022-0467-7: FUEL INJECTION VALVE PUBLICATION NUMBER 09910648 WO

5. NDN 172-0022-0462-8: CONVERSION SYSTEM WITH ELECTRONIC CONTROLLER FOR UTILIZATION OF GASEOUS FUELS IN SPARK IGNITION ENGINES PUBLICATION NUMBER- 09910643 WO

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PCT WELTORGANISATION FÜR GEISTIGES EIGENTUM
Internationales Büro
INTERNATIONALE ANMELDUNG VERÖFFENTLICHT NACH DEM VERTRAG
INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWE

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F02M 61/16, 61/12, 51/06	A1	(43) Internationales Veröffentlichungsdatum:

(21) Internationales Aktenzeichen: PCT/DE98/02135

(22) Internationales Anmeldedatum: 28. Juli 1998 (28.07.98)

(30) Prioritätsdaten:
197 36 682.1 22. August 1997 (22.08.97) DE

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(81) Bestimmungsstaaten: CN, CZ, J Patent (AT, BE, CH, CY, DE, IE, IT, LU, MC, NL, PT, SE).

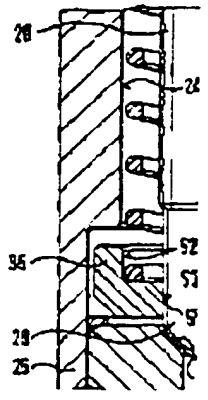
Veröffentlicht
Mit internationalem Recherchent Vor Ablauf der für Änderungen a Frist; Veröffentlichung wird wi eintreffen.

(54) Title: FUEL INJECTION VALVE

(54) Bezeichnung: BRENNSTOFFEINSPRITZVENTIL

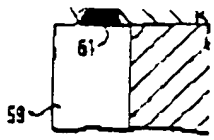
(57) Abstract

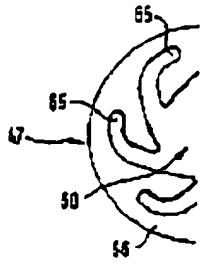
The invention relates to a fuel injection valve, especially a high pressure injection valve, which directly injects fuel into the combustion chamber of a mixture-compressing, spark-ignited internal combustion engine. The invention is characterized in that a guide and seat area is provided on the downstream end of the valve, said area being formed by three disc-shaped elements (35, 47, 26). A swirl element (47) is embedded between the guide element (35) and a valve seat element (26). The guide element (35) can move radially in the assembled valve and has an inner guide orifice (55), which guides an axially movable valve needle (20) traversing said orifice, whereas a valve closing area (28) of the valve needle (20) interacts with a valve seat surface (27) of the valve seat element (26). The swirl element (47) has an inner orifice area with several swirl channels that are not connected to the outer periphery of the swirl element (47). The entire orifice area extends completely along the thickness of the swirl element (47) in an axial direction.



(57) Zusammenfassung

Die Erfindung betrifft ein Brennstoffeinspritzventil, insbesondere ein Hochdruckeinspritzventil zum direkten Einspritzen von Brennstoff in einen Brennraum einer gemischverdichtenden fremdgezündeten Brennkraftmaschine, das sich dadurch auszeichnet, daß am stromabwärtigen Ende des Ventils ein Führungs- und Sitzbereich vorgesehen ist, der von drei scheibenförmigen Elementen (35, 47, 26) gebildet wird. Dabei ist ein Drallelement (47) zwischen einem Führungselement (35) und einem Ventilsitzelement (26) eingebettet. Das Führungselement (35) dient der Führung einer es durchragenden, axial beweglichen Ventilnadel (20), während ein Ventilschließabschnitt (28) der Ventilnadel (20) mit einer Ventilsitzfläche (27) des Ventilsitzelements (26) zusammenwirkt. Das Drallelement (47) weist einen inneren Öffnungsbereich mit mehreren Drallkanälen auf, die nicht mit dem äußeren Umfang des Drallelements (47) in Verbindung stehen. Der gesamte Öffnungsbereich erstreckt sich vollständig über die axiale Dicke des Drallelements (47).





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(51) Internationale Patentklassifikation 6 :
F02M 61/12, 61/16, 51/06

A1

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(22) Internationales Anmeldedatum: 26. Juni 1998 (26.06.98)

(30) Prioritätsdaten:
197 36 684.8 22. August 1997 (22.08.97) DE

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(81) Bestimmungsstaaten: CN, CZ, J Patent (AT, BE, CH, CY, DE, IE, IT, LU, MC, NL, PT, SE).

Veröffentlicht
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(54) Bezeichnung: BRENNSTOFFEINSPRITZVENTIL

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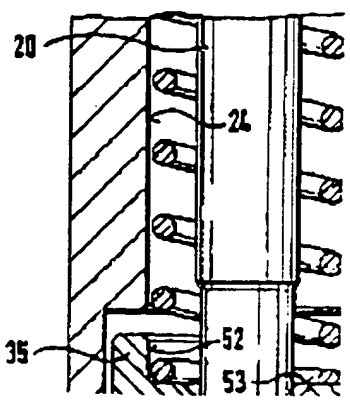
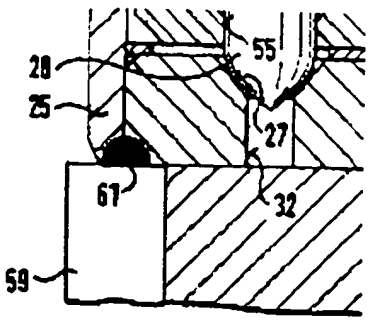


which engages at said element.



(57) Zusammenfassung

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1. FUEL INJECTION DIAGNOSTIC CONTROL DEVICE - PCT 03-04-99 0991075 1 WO
NDN- 172-0022-0570-0

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APPLICANT(S)- ZYLER, Edward, Christopher 26 Schofield Road, Peel Green, Eccles, Manchester M30 7LG United Kingdom DATE FILED- 1998-08-24 PUBLICATION NUMBER- 09910751 WO DOCUMENT TYPE- A1
PUBLICATION DATE- 1999-03-04 PATENT PRIORITY INFO- 9717993.1, 1997-08-27, United Kingdom ATTORNEY, AGENT, OR FIRM- AJELLO, Michael, John, Urquhart-Dykes & Lord, Northern Assurance Buildings, Albert Square, Manchester M2 4DN, United Kingdom INTERNATIONAL PATENT CLASS- G01R; 31/00; F02M; 65/00; G01M; 15/00; F02D; 41/22 PCT APP. NO.- PCT/GB98/02471 FILING LANGUAGE- English LANGUAGE- English

A diagnostic/control device for fuel injected internal combustion engines comprising a control system connectable via leads to the fuel injectors after disconnection therefrom of an engine management computer, the latter being connected directly (at 18) to the control system. An oxygen sensor is connected (at 17) to the control system whereby the latter is connected between the engine management computer and the fuel injectors and can be operated in closed circuit or open circuit mode to control the injectors directly when required independently of the engine management computer.

2. FUEL INJECTION VALVE - PCT 03-04-99 09910650 WO NDN-172-0022-0469-0

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APPLICANT(S)- KRAUSE, Heinz-Martin Holderlinstrasse 1, D-71254 Ditzingen Germany DATE FILED- 1998-06-17 PUBLICATION NUMBER-
09910650 WO DOCUMENT TYPE- A1 PUBLICATION DATE- 1999-03-04 PATENT
PRIORITY INFO- 197 36 548.5, 1997-08-22, Germany INTERNATIONAL PATENT
CLASS- F02M; 69/04 PCT APP. NO.- PCT/DE98/01648 FILING LANGUAGE-
German LANGUAGE- German

The fuel injection valve is characterized in that a preparation attachment consisting of a gas-surrounding element and an insert is provided on the downstream end of the fuel injection valve. The downstream end of the fuel injection valve with the preparation attachment is totally encompassed by a tubular, thin-walled, metal gas-surrounding body in the peripheral direction. The gas-surrounding body is fixed to one of the valve housings and encompasses at least partially the plastic tube of the fuel injection valve by means of a non-material fitting snap-on, clamp or clip connector. The corresponding connector elements are configured in the form of noses and latches. The inventive fuel injection valve is particularly sui

Mail table

for injecting an intake pipe of a mixture-compressing, spark-ignited internal combustion engine.

3. FUEL INJECTION VALVE - PCT 03-04-99 09910649 WO NDN-172-0022-0468-9

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APPLICANT(S)- LEUSCHNER, Wolfgang In der Au 9, D-91330 Eggolsheim Germany DATE FILED- 1998-07-28 PUBLICATION NUMBER- 09910649 WO
DOCUMENT TYPE- A1 PUBLICATION DATE- 1999-03-04 PATENT PRIORITY INFO-
197 36 682.1, 1997-08-22, Germany INTERNATIONAL PATENT CLASS- F02M;
61/16; 61/12; 51/06 PCT APP. NO.- PCT/DE98/02135 FILING LANGUAGE-

The invention relates to a fuel injection valve, especially a high pressure injection valve, which directly injects fuel into the combustion chamber of a mixture-compressing, spark-ignited internal combustion engine. The invention is characterized in that a guide and seat area is provided on the downstream end of the valve, said area being formed by three disc-shaped elements (35, 47, 26). A swirl element is embedded between the guide element and a valve seat element. The guide element can move radially in the assembled valve and has an inner guide orifice

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guides an axially movable valve needle traversing said orifice, whereas a
valve closing area of the valve needle interacts with a valve seat surface
of the valve seat element. The swirl element has an inner orifice area
with several swirl channels that are not connected to the outer periphery
of the swirl element. The entire orifice area extends completely along the
thickness of the swirl element in an axial direction.

4. FUEL INJECTION VALVE - PCT 03-04-99 09910648 WO NDN-

172-0022-0467-7

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Germany DATE FILED- 1998-06-26 PUBLICATION NUMBER- 09910648
WO
DOCUMENT TYPE- A1 PUBLICATION DATE- 1999-03-04 PATENT PRIORITY
INFO-
197 36 684.8, 1997-08-22, Germany INTERNATIONAL PATENT CLASS- F
02M;
61/12; 61/16; ~~51/06~~ PCT APP. NO.- PCT/DE98/01758 FILING LANGU
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The invention relates to a fuel injection valve, especially a high pressure injection valve, which directly injects fuel into the combustion chamber of a mixture-compressing, spark-ignited internal combustion engine. The invention is characterized in that a guide and seat are

a is provided on the downstream end of the valve, said area being formed by three disc-shaped elements (35, 47, 26). A swirl element is embedded between the guide element and a valve seat element. The guide element can move radially in the assembled valve and has an inner guide orifice, which guides an axially movable valve needle traversing said orifice, whereas a valve closing area of the valve needle interacts with a valve seat surface of the valve seat element. The guide element is tensioned by a pressure spring which engages in said element.

5. CONVERSION SYSTEM WITH ELECTRONIC CONTROLLER FOR UTILIZATION OF GASEOUS FUELS IN SPARK IGNITION ENGINES - PCT 03-04-99 09910643 WO NDN-172-0022-0462-8

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APPLICANT(S)- ALTERNATIVE FUEL SYSTEMS INC. Suite 420, 1207 - 11th Avenue S.W., Calgary, Alberta T3C 0M5 Canada DATE FILED- 1998-08-25
PUBLICATION NUMBER- 09910643 WO DOCUMENT TYPE- A1 PUBLICATION DATE- 1999-03-04 PATENT PRIORITY INFO- 2,213,939, 1997-08-25, Canada
ATTORNEY, AGENT, OR FIRM- WOOD, Max, R., Swabey Ogilvy Renault, Suite 1600, 1981 McGill College Avenue, Montreal, Quebec H3A 2Y3, Canada
INTERNATIONAL PATENT CLASS- F02D; 19/06; 37/02 PCT APP. NO.- PCT/CA98/00806 FILING LANGUAGE- English LANGUAGE- English

A conversion system for converting a spark ignition engine to operate on gaseous fuel is disclosed. The conversion system includes an electronic controller which operates on several novel principles to provide su

perior
performance/responsiveness and to reduce exhaust emissions. The con
troller
in accordance with the invention assumes complete control of spark
ignition timing when gaseous fuel mode is enabled and generates
independent spark ignition signals tailored to the gaseous fuel. Th
e
controller also generates an independent pulse width modulated gase
ous
fuel injection signal that controls a high performance electronic s
olenoid
injector valve to supply gaseous fuel to the engine. Variable injec
tor
speed is used to compensate for the dynamic range of the engine. A
novel
dual array block learn scheme is used to provide efficient fuel con
trol in
engines equipped with closed-loop monitoring systems and exhaust ga
s
recirculation. A gasoline power boost mode is also provided to enab
le
extra power when maximum engine torque is commanded. The advantage
is an
efficient fuelling system which provides all of the advantages of g
aseous
fuels while preserving the power capabilities of liquid fuels, and
minimizing exhaust emissions.

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